

ABSTRACT

A method for replicating and amplifying a target nucleic acid sequence is described. A method of the invention involves the formation of a recombination intermediate without the prior denaturing of a nucleic acid duplex through the use of a recombination factor. The recombination intermediate is treated with a high fidelity polymerase to permit the replication and amplification of the target nucleic acid sequence. In preferred embodiments, the polymerase comprises a polymerase holoenzyme. In further preferred embodiments, the recombination factor is bacteriophage T4 UvsX protein or homologs from other species, and the polymerase holoenzyme comprises a polymerase enzyme, a clamp protein and a clamp loader protein, derived from viral, bacteriophage, prokaryotic, archaeobacterial, or eukaryotic systems.